

Root-knot Nematodes on Vegetables

www.ncagr.com/agronomi/uynrm.htm

Your nematode assay report indicates a potential nematode hazard. Several species of root-knot nematode can cause major losses in vegetable crops, especially those grown in sandy soil and under late spring and summer conditions. Small to large root galls are evidence of these parasites (FIGURE 1) and can be readily observed on the roots of infected plants such as bean, pea, sweetpotato, tomato and other summer-season vegetables. Early spring-planted vegetables—such as beet, carrot, English pea, lettuce, potato and radish—can usually be grown in infested soils with limited damage.

Nematicides are available for commercial growers, but crop rotation, resistant varieties and soil amendments are the only management choices for the home garden. Root-knot nematodes attack so many plants that it is difficult to implement a good rotation. As a rule, homeowners can reduce root-knot populations in a garden plot by growing asparagus, fescue, onion, small grains or marigolds in it for two to three consecutive years.

When possible, plant varieties that have resistance to root-knot nematodes (TABLE 1). **Resistant** varieties actually suppress nematode populations to some extent. **Tolerant** varieties will grow in infested fields, but they do not suppress nematode populations and still exhibit some yield loss.

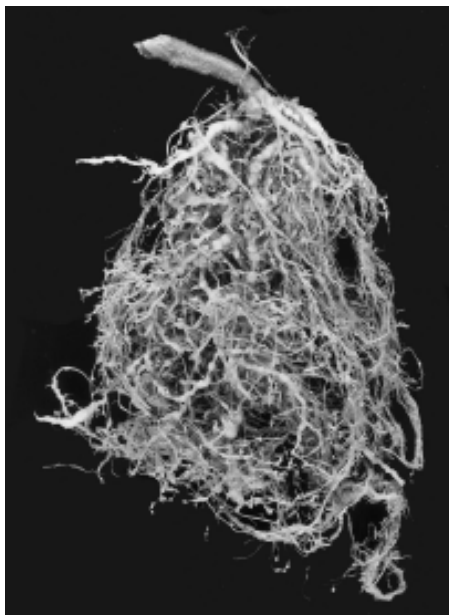


FIGURE 1. Root-knot damage to vegetables: tomato infected by *Meloidogyne arenaria* (left) and carrot infected by *M. hapla* (right).

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TABLE 1. Some vegetable cultivars resistant (or tolerant where indicated) to root-knot nematodes.

<u>Lima Bean</u>	<u>Sweetpotato</u>	<u>Cherry Tomato</u>
Nemagreen	Carolina Nugget	Small Fry
	Cordner	Sweet Million
<u>Snap Bean</u>	Excell	
Bountiful	Heart	<u>Paste Tomato</u>
	Hernandez	Classica
<u>Southern Pea</u>	Jewel	Viva Italia
Charleston Nemagreen	Nemagold	
Clemson Purple	Nugget	<u>Tomato</u>
Colossus	Regal	Atkinson
Floriceam	Resisto	Auburn
Magnolia Blackeye		Better Boy
Hercules	<u>Bell Pepper</u>	Early Girl
Mississippi Purple	Carolina Wonder	Park's Whopper
Mississippi Silver	Charleston Bell	Goliath
		Vine Ripe
<u>Sweet Corn</u> (tolerant)	<u>Hot Pepper</u>	VFN 8
Carmel Cross	Carolina Cayenne	Wonderboy VFN
Span Cross	Charleston Hot	

As a rule, root-knot-resistant varieties are not resistant to all populations of this nematode. Therefore, it is a good idea to examine the crop roots at the end of the season. Look for root galls. If no galls are present, then the resistance is effective.

Cultural practices can also be effective in reducing nematode populations.

- Removing residual crop roots immediately after harvest helps prevent nematode build-up.
- Tilling (hoeing, turning, cultivating) the soil two to four times in the fall allows sun and weather to diminish nematode populations.
- Incorporating organic matter into garden soil depresses nematode populations and increases water-holding capacity of soil and associated beneficial microbes.
- Planting marigolds in a vegetable garden helps control root-knot nematodes.

For Additional Assistance

- Call your NCDA&CS regional agronomist or the Agronomic Division office in Raleigh (919-733-2655).
- Visit the NCDA&CS Agronomic Division Web site at www.ncagr.com/agronomi/.
- Visit your county Cooperative Extension office.
- Refer to the following online publications.
 - ***How to manage pests. Pests in landscapes and gardens: nematodes*** (University of California, 2001)
— www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7489.html
 - ***Root-knot nematodes: biocontrol with marigolds*** (NCDA&CS Agronomic Division, 2006)
— www.ncagr.com/agronomi/pdffiles/nnote1.pdf
 - ***Root-knot nematodes in the vegetable garden*** (Clemson Extension, 2004)
— hgic.clemson.edu/factsheets/HGIC2216.htm
 - ***Managing nematodes for the non-commercial vegetable garden*** (University of Florida Extension, 2001)
— edis.ifas.ufl.edu/NG005